



RICE LAKE NATIONAL WILDLIFE REFUGE

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NARRATIVE REPORT

1969

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF SPORT FISHERIES & WILDLIFE

FISH AND WILDLIFE SERVICE

MC GREGOR, MINNESOTA

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# C O N T E N T S

	<u>Page</u>
I General	
A. Weather Conditions .....	1
B. Habitat Conditions	
1. Water .....	3
2. Food and Cover .....	4
II Wildlife	
A. Migratory Birds .....	5
B. Upland Game Birds .....	8
C. Big Game Animals .....	9
D. Fur Animals, Predators, Rodents & Other Mammals .....	10
E. Hawks, Eagles, Owls, Crows, Ravens & Magpies .....	12
F. Other Birds .....	13
G. Fish .....	13
H. Reptiles .....	13
I. Disease .....	14
III Refuge Development and Maintenance	
A. Physical Development .....	14
B. Plantings .....	15
C. Collections and Receipts .....	16
D. Control of Vegetation .....	18
E. Planned Burning .....	18
F. Fires .....	18
IV Resource Management	
A. Grazing .....	18
B. Haying .....	18
C. Fur Harvest .....	18
D. Timber Removal .....	19
E. Commercial Fishing .....	19
F. Other Uses .....	19
V Field Investigation or Applied Research	
A. Waterfowl Banding .....	19
B. Canada Goose Flock .....	20
C. Artificial Nesting Sites .....	20
D. Rice Borer Study .....	21
E. Soil Mapping .....	21
F. Timber Management .....	21
VI Public Relations	
A. Recreational Uses .....	21
B. Refuge Visitors .....	22A
C. Refuge Participation .....	22B
D. Hunting .....	22
E. Fishing .....	23
F. Violations .....	23
G. SAFETY .....	23



## C O N T E N T S

	<u>Page</u>
VII Other Items	
A. Items of Interest .....	24
B. Signature .....	25

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RICE LAKE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY - DECEMBER, 1969

I GENERAL

A. Weather Conditions:

	<u>Month</u>	<u>Precipitation</u>		<u>Max. Temp.</u>	<u>Min. Temp.</u>
		<u>Normal</u>	<u>Snowfall</u>		
January	2.91	.633	32.8	32	-27
February	.31	.599	3.5	40	-19
March	.28	1.239	2.0	55	-10
April	.96	2.343	2.0	67	15
May	2.04	3.716	-	90	30
June	2.21	4.071	-	82	32
July	5.19	4.440	-	90	38
August	.34	3.970	-	89	45
September	2.86	2.749	-	84	29
October	1.30	1.575	-	75	15
November	1.06	1.258	8.0	62	- 2
December	<u>2.15</u>	<u>.725</u>	<u>27.0</u>	<u>45</u>	<u>-17</u>
Annual Totals	21.61	27.318	75.3	90	-27

The moisture listings for months in which snow fell include the precipitation which fell as rain and the snowfalls which were melted for measurement here at refuge headquarters. As usual our temperature data came from the Government Weather Station at the Sandy Lake Dam, located 23 miles north of refuge headquarters.

Heavy snowfalls were received during the month of January. In fact the snow and moisture content was the greatest amount received for any January since 1945. The month alternated with bitter below zero readings and fairly warm days with some sleet and rain being received. By January 24, the average snow depth in wooded areas measured 27 inches. The total snowfall received for the month totalled 32.8 inches and the moisture content was 2.91 inches. Until the snow had settled some it was extremely difficult to get around. Even with snowshoes on one would sink up to the knees and a good share of the snowmobilers put their machines away as they were all getting stuck in the deep snow. Wildlife, especially deer, were having a extremely difficult time getting around and the State Conservation Department issued a call for help in opening up trails and cutting browse around deer yards.

Luckily, February and March were below normal in snowfall and precipitation. The first half of February was quite cold but by the middle of the month the weather moderated and very few below zero readings were recorded to breakup.

With all the snow on the ground the weather bureau began warning all areas to expect heavy floods comparable to the high waters of 1965. Some parts of the state did have severe flooding, but the refuge area was not affected. By the end of April the bulk of the runoff was completed and levels began equalizing.

April and May continued with typical spring weather. In fact, it was dryer than usual. Extreme temperatures were recorded during the month of May. A high of 90 degrees was recorded on May 28, which is most unusual for this area. Although the month of May recorded some very pleasant temperatures the months of June and July were very dry and cool. Frost was recorded in June. Many areas around the refuge were affected by a heavy frost on July 1 and again on July 3. It was cool enough to freeze gardens.

July weather was fairly typical temperature-wise but with above normal precipitation. Night-time temperatures were cool. A maximum of 90° and a minimum of 38° was recorded for the month.

August had constant high temperatures with a high of 89°. Normally, the nights are cool but this year they remained very warm for the bulk of the month. Precipitation for the month was .34 or 3.63" below the normal. Temperatures remained high to the middle of September with a high of 84° recorded on September 13. A light frost occurred on September 9, with a killing frost occurring on the 28th. It was a pleasant month temperature-wise but precipitation fell on 11 of the 30 days. Precipitation for the period was .73 or 2.019" below normal.

October, for the most part, was cool and damp. Although total precipitation was low rain did fall on 11 days. Frosts occurred regularly with evening lows down to 15°. However it was usually quite windy and prevented water areas from freezing. Two inches of snow fell on October 13 but quickly melted. By the end of October all small ponds, lakes and ditches were still open. Total moisture received for October was 1.30 inches which was in sharp contrast to the 4.28 inches received the previous year.

November began with extremely mild temperatures and continued through the deer season which ran from November 8-12, inclusive. In fact deer hunters complained of the heat. Needless to say, there was no snow cover. By November 11, a cold front moved in from the northwest and more normal temperatures for this time of year prevailed. The day after deer season ended one-half inch of snow was received - this was followed by one-half inch again on the 14 and 15th. By November 18 winter had really set in with 6.5 inches of snow received and temperatures around zero.

December was a heavy snow month with total snowfall amounting to 27 inches and moisture content 2.15 inches. Normal precipitation for the month is .725 inches. The snow cover at the end of the month averaged 18 inches. However, temperatures for the most part were mild with very little wind being recorded. The bulk of the snow fell before lakes and ponds had frozen very deep. The result was water on the ice making ice travel near impossible.

## B. Habitat Conditions:

### 1. Water:

During January snowfall was heavy with a total accumulation of 32.8 inches. Precipitation in liquid form was 2.91 inches. Wildlife conditions, especially for deer, became a major concern because of snow depth. Fortunately, February brought only 3.5 inches of snow with .31 inches of moisture and March had only two inches of snow with .28 inches of water content. The dry trend continued in April as the ice went out and only .96 inches of moisture was recorded. High waters resulted from fast runoff but only minor damage occurred. It was necessary to winch log jams out of the Rice River control and one culvert washed out of the North Bog Road. The ice was out of Rice River by April 11, and Rice Lake by April 20.

May and June were also very dry and with cool temperatures crops were extremely slow in germinating. July was a wet month with 5.19 inches of rain and with more moderate temperatures day and night. The warm, moist conditions caused crops to shoot up rapidly. Wild rice beds also appeared to benefit. August was extremely dry with .34 inches of moisture but good ground water

conditions. September, October and November were months of relatively low precipitation but with frequent light rainfalls, especially during the first two months. As in 1968, December was a month of heavy snowfall with 27 inches contributing 2.15 inches of moisture.

Water management during the year was aided by adequate ground water. Cool temperatures during dry periods retarded evaporation somewhat.

The expected freeze-up, opening and refreezing occurred and both Rice Lake and Rice River were frozen over by November 14.

The peak elevation at the Rice Lake control was 98.46 feet on April 21. At the end of December the water there stood at 95.50 feet. Rice River peaked at 99.70 at the control structure on April 14, and ended the year at 95.00.

Total snowfall from January through December was 75.3 inches and total moisture was 21.61 inches.

## 2. Food and Cover:

Cool temperatures early in the season held up the development of food and cover plants but they picked up growth by mid-summer. Wild rice was spotty until the water temperature rose. Beds were fairly extensive and produced a good crop. Excellent beds of wild celery grew over much of Rice Lake and were concentration points for canvasbacks, widgeon, coots and whistling swans. Pondweeds also produced well.

Roundstem bulrushes provided early brood cover. Wild rice and bulrushes were favored by moulters. The primary wood duck roost was on the southwest side of Rice Lake where beaver activity created attractive conditions for woodies.

Exposed mudflats in the Rice River Pool and at Rice Lake outlet were highly favored loafing and feeding spots for geese, ducks and shorebirds.

Cultivated crops started slow but caught up when warm, moist days and nights in July made growing conditions ideal. Corn produced the best crop in years. Buckwheat, oats and rye also yielded well. Clovers and grasses made excellent browse and nesting cover.

## II WILDLIFE

### A. Migratory Birds:



1. Whistling Swan:

The first swans used Rice Lake during the third week of April when ten were observed. This was also the peak spring population as it was in 1967. Ice conditions kept feeding areas covered through much of the migration. Earlier opening in 1968 permitted a buildup of 400 birds. None remained during the summer. A crippled swan was reported east of the refuge on July 13; at the approach of the refuge manager and biol. technician, the bird took off to the east and was not seen again.

Fall migrants first stopped at the refuge during the last week of October. There were 70 at that time. The peak of 250 was 100 below that of 1968. Flights over the refuge were commonly observed until well after all water areas were frozen over in November. Some groups stopped only briefly and moved on. The birds used Rice Lake almost exclusively.

Total use by whistling swans was 3,850 days compared to 8,120 in 1968 but well above 1967 use.

2. Geese:

Through the first half of January three Canadas remained at the outlet of Rice Lake and at the springs where they fed primarily on rough fish such as perch and bullheads. From that time only two were seen until the third week of March when they also left the area. All were free flyers.

The first 15 migrants moved into the refuge during the third week of March. This was the same week as in 1968 when 15 were also the first arrivals. There was a gradual buildup to 500 in mid-April. Again, about half the flock chose to nest outside the refuge. These were investigated and mapped as has been done since more of the birds began using off-refuge sites. Cooperation from landowners was very good. Production of refuge geese was 100 young and about the same number of young came from outside habitat. One new wild rice paddy had 13 young Canadas and another area was reported to have over 20.

The refuge served as a regrouping area beginning in late July as young birds became capable of flight. There was much movement to other areas however, and there were times when most of the refuge birds used local lakes and fields. The first migrants were seen on September 23, with a peak population buildup of 800 large Canadas and 200 small ones. Lesser Canadas were present from the first week of October through the first week of November. All geese had departed by November 15.

Blue and snow geese first arrived for the fall migration during the fourth week of September when 30 of each dropped into the West Fields. The peak of 2,000 occurred in mid-October. Use by these birds varied from a short stop of a few hours to some which lasted for weeks. Their erratic use of this area is illustrated by the peak of 110 in 1968 and 5,500 in 1967. Spring use varies even more. Eighty were present during the spring of 1968 and none in 1969. Food and cover conditions in 1969 were some of the best in several years.

Total goose use for the year was 117,768, up about 14,000 from 1968. Most annual fluctuation is caused by blues and snows.

### 3. Ducks:

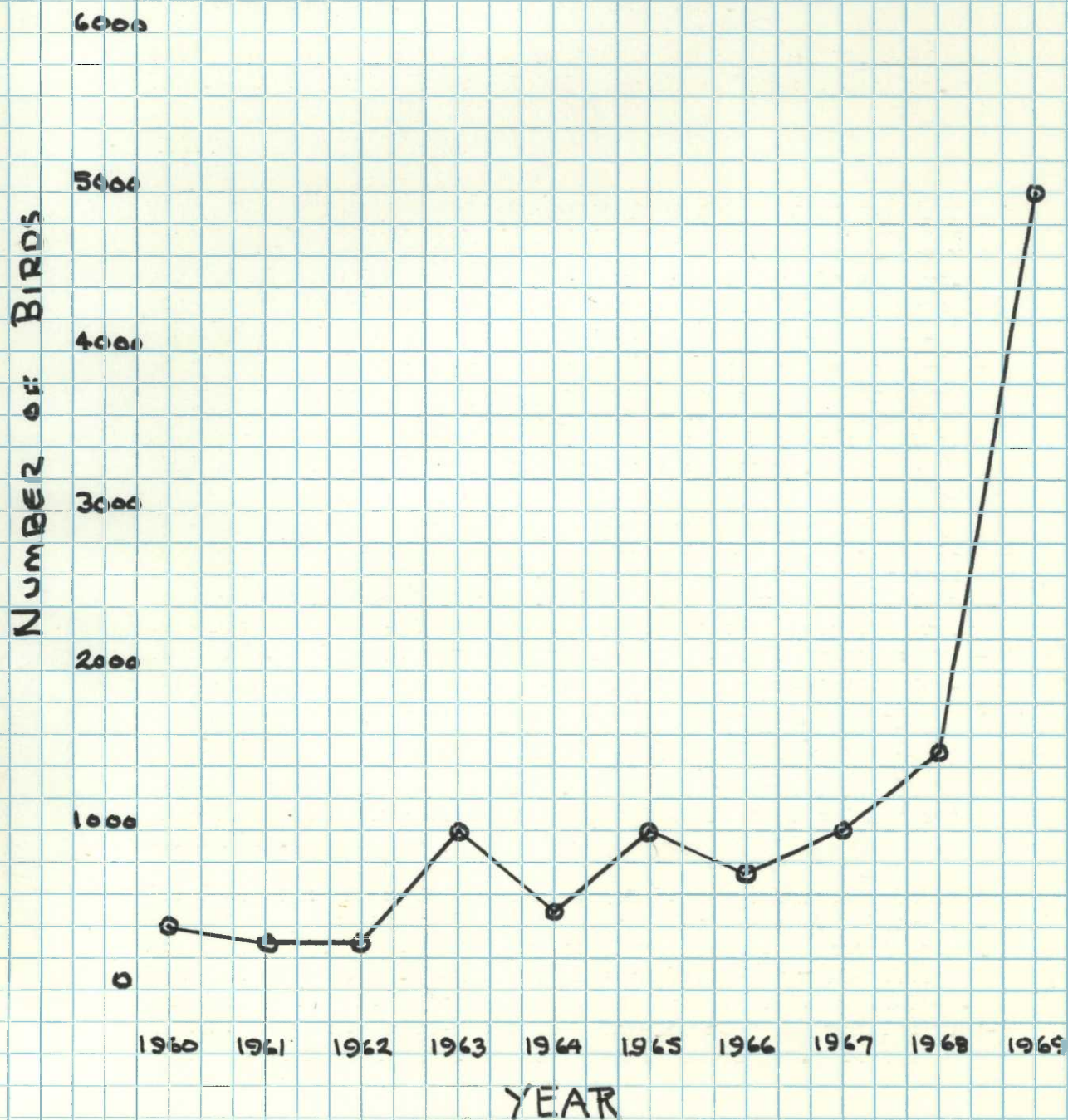
Arrival by ducks was generally more than two weeks later than a year ago. Ice cover kept most of the ducks from moving into the area until the second week of April and even then there was very little feeding habitat opened up except for fish-eaters. Mergansers and divers were among the earliest arrivals, preceded only by a group of 10 mallards the first week of the month. Peak spring populations were not reached until the last week of April and the first week of May. The peak of 8,750 was 5,000 less than a year ago, primarily because much of the migration had passed before refuge habitat opened up. The bulk of the difference was in blue-wings, ringnecks and scaup.

During the summer months ducks peaked about 3,000 below the summer of 1968 but total use was nine per cent higher, comparable to 1967. The production of 1,605 young was about 10 per cent higher than the previous year. Wood ducks, blue-wings, widgeon, mallards and green-wings were the best producers, in the order mentioned. Widgeon, blue-wings, shovelers, wood ducks, canvasbacks, goldeneyes and hooded mergansers showed increased use. Of especial interest was the production of broods by goldeneyes and canvasbacks, both new records for this refuge. Species showing decreased total use were mallards, blacks, pintails, greenwings, ringnecks and scaup. Stragglers from the spring migration were fewer than in 1968, which affected total use for the period.

The fall peak of ducks was more than 21,000 higher than in 1968 and the ringneck accounted for a large portion of the increase, as it did last year. These ducks showed 1,475,600 use days, an increase of 630,000. Mallards also reflected a substantial increase with 805,000 use days as compared to 434,700 in 1968. Blacks, widgeon, green-wings and blue-wings, wood ducks, canvasbacks and hooded mergansers also showed increases. It was



FALL PEAKS ON CANVASBACKS  
RICE LAKE REFUGE



especially gratifying to have a peak of 5,000 cans on the lake in late October. Gadwalls, pintails, shovellers, redheads, scaup and buffleheads showed varying degrees of decreased fall use. Only the goldeneye retained a fairly stable status. Total fall duck use was 3,245,900 days.

Total duck use for 1969 was 3,980,118 days. In 1968 it was 3,069,220 days. Total waterfowl days use of the refuge in 1969 was 4,338,056 as compared to 3,638,439.

4. Coots:

The first 10 coots appeared on the refuge during the third week of April as compared to a week earlier a year ago. The peak of 500 came two weeks later. This was comparable to the previous year and the peak summer population of 100 was about the same. Production of 50 young was average for the past several years.

Coots began moving into the refuge the second week of September with an initial influx of 100 birds. By the first week of October there were 10,000 coots on the refuge, mostly on Rice Lake. This was again a 5,000 coot drop in peak population for the fall. Birds were moving out within a week and a gradual decline continued until the last 50 coots left the refuge during the second week of November.

Total coot days use for the fall was 215,250, about half that of 1968. The total for the year was 236,320 days as compared to 457,800 in the previous fall.

5. Other Water Birds:

The first great blue heron arrived on the refuge March 24, and there were 100 by April 10. They did not return to the island rookery as they had for so many years. The raccoon depredation of a year ago must have remained in their memories and they established a new colony along the Rice River. There were nearly 50 nests in the new rookery, an area that had not been previously used for this purpose, at least in recent years. Blue heron use during the summer was about average, with many of the birds flying off the refuge to feed during the day and returning at night. They were present until October 29. Belted kingfishers arrived on April 10, and remained until November 8. The earliest common loon was seen on April 18, about 10 days later than last year. Numbers varied up to 10 but usually two to four were using the refuge. The last observation of these birds was on October 27. Sandhill cranes

arrived on April 12, and also remained throughout the three seasons. Usually peak numbers seen were four. They remained until November 6. American bitterns were common on the refuge from April 18, until October. Pied-billed grebes were fairly common summer residents while horned grebes visited in fair numbers during early spring and late fall. Common egrets visited the refuge in singles or couples in May and June. Three white pelicans stopped in during early June.

Sora rails were commonly heard and sometimes seen during the summer months. They were quite common in the rice beds in September. Virginia rails were less common but were present on the refuge in good numbers.

6. Shorebirds, Gulls and Terns:

Killdeer were again the first to arrive, with three seen on April 4; after that they were common on roads and fields of the refuge. Common snipes arrived on April 11, and became one of the more common residents with several hundred using the refuge by early fall. Spotted sandpipers were again the most common shorebirds along pond and pool edges. Lesser yellowlegs were also April arrivals. Ring-billed and herring gulls were visitors throughout the spring, summer and fall. Mid-summer and early fall water management exposed mud flats which were favored shorebird feeding spots for such other species as least sandpipers, pectoral sandpipers, Wilson's phalarope and greater yellowlegs. Golden plovers stopped over in May and September. Black and common terns were fairly common summer residents. Two immature Bonaparte's gulls were observed on August 11, on Rice Lake. Most shorebirds and terns had departed by early fall but a few of the hardy ones remained. Killdeer were seen until October 17, spotted sandpipers until November 9, and lesser yellowlegs until November 16.

B. Upland Game Birds:

Spring drumming by ruffed grouse was quite promising and nests were located in two areas. Early observations of broods indicated a fair production. By fall it was apparent that though there would be a fair population it would not measure up to spring indications. This was borne out during the hunting season when a portion of the refuge was opened to grouse hunting. Again, predictions of high ruffed grouse populations made by the State on the basis of spring drumming counts, did not come true for this area. A fair carryover went into the winter though observations were scattered during the fall and early winter months.



One promising feature was the first change noted in the sharp-tailed grouse population in several years on the upward side. At least one fairly large brood was seen in the West Fields area. During the fall one flock of 35 was observed and other observations indicated from 16 to 30 or more birds using the cornfields, buckwheat and other crops. When flushed they would usually fly into the willow thickets and marsh south of the fields. Observations of smaller groups were also made in the northeast and northwest portions of the refuge. Sharptails were noted west of the refuge. Budding on birches by both ruffed and sharp-tailed grouse was observed in early winter.

Very light spring and summer use of the refuge by woodcock was noted. The singing ground surveys indicated limited populations. The most commonly used portion of the refuge lies along the east side near East Lake. Here birds were occasionally observed during the evening. No major fall flight was noted on the refuge and grouse hunters reported a similar condition outside. Though precipitation was light during the fall it was quite frequent and habitat conditions for these birds were fair to good.

C. Big Game Animals:

Heavy snowfalls early in the winter indicated a rough winter for white-tailed deer and yarding occurred early. Much emergency work was done by sportsmen in surrounding yards through browse cutting and making trails to available food. Refuge deer appeared better set-up than on some areas and though access trails were packed for them, cutting was extremely limited and used only for a couple of isolated fawns which appeared in special need. Deer used packed trails well for travel in areas adjacent to the yards. The weather became dry after January and little snow fell for the rest of the winter, which may well have been the salvation of large numbers of Minnesota white-tails. The fawn crop showed a good number of twins on the refuge but many outside landowners reported no deer where they had good numbers on their fields previously.

By fall it was possible to see 30 or 40 deer in the fields at times and possibly that many more in a tour of the refuge. Heavy use was made of one of the best corn crops in recent years. Fall age ratios indicated a strong preponderance of adult deer and hunting statistics showed the same. Fall population data was about the same as the previous year. The post-season carry-over was adequate but appeared down slightly. A portion of the refuge deer yard off the refuge in winter.

Moose continued to wander in and out of the refuge and tracks were seen on several occasions during the summer and fall. Moose were

present northeast of the Rice River the day prior to the deer hunting season but no sign was seen of them after that time. They were in an area open to hunting.

Black bears were seen regularly throughout the summer by both refuge personnel and visitors. Favorite crossings continued to be in the Mandy Lake area and east of the main bridge over the Rice River. One fisherwoman at the bridge departed after seeing several cross the road one morning. During the spring, one was observed to drag a dead deer from the water of a ditch, eat its fill of viscera and cache the rest which it cleaned up on later visits. Mr. Thornbloom's 12-year-old son experienced a real thrill when he met one face-to-face at close range during the fall. Needless to say, neither stayed to enjoy the other's company. Bears, like most other big game, spend a portion of their time outside of the refuge and some den off the area. Those animals observed appeared in good condition. Many of the refuge oaks contributed their acorn crops from broken limbs to fatten the bruins for the long winter.

D. Fur Animals, Predators, Rodents and Other Mammals:

A mink den on the Rice River Pool provided opportunity for observations of these animals during the early spring. Another spot was the outlet structure of Rice Lake. Over-all the population was light. One mink developed a taste for the bait in one of the live traps used for predator control around goose nests in the spring. As a result, it was taken six days in a row and occasionally thereafter. It became so tame that when released it would merely move to the water and drink, then go about its business as casually as though nothing had happened.

Muskrats made a fair increase during 1969 and houses were more common. The single trapper employed made only a light catch and the carry-over should be adequate.

Activity by a family of otters on the Rice River proved a source of pleasure for many fishermen during the summer. These animals wander freely over the refuge and adjoining lands and some are trapped each spring on outside areas. The population, therefore, remains quite stable from year to year. An amateur photographer was pleased to find out that his picture of a large mink was actually an otter photo. Tracks during the winter were not as common as a year ago but Rice River showed good use.

Beaver colonies are distributed throughout the refuge and in most cases help to create and maintain waterfowl habitat. The prime wood duck roost in 1969 was created by beavers on the southwest corner of Rice Lake. Very little difficulty occurred with culvert plugging. In the fall some new activity was noted around the new

Beaver Pool and two young beavers were observed. One trapper was employed to remove a few nuisance animals along the North Bog Road.

Weasels were especially common during 1969 but there was little or no interest in them by trappers because of low pelt value.

Red foxes are not as common as they were a couple of years ago but observations were quite regular and three dens were located. Only three pups were produced in each den. A deer hunter reported seeing a black specimen on the west side of the refuge but a local trapper working private lands in that area caught only reds.

Coyotes continued to increase and were quite commonly seen during the summer and into the winter months. Their calls could be heard occasionally at night or early morning. One case of a late winter chase and kill of a weakened deer in the north bog was authenticated by Thornbloom and Pospichal. The animal was eventually completely consumed by coyotes and foxes.

Raccoons were down slightly from the previous year but still common enough to be seen regularly and to cause problems in the operation of banding traps. Control operations around goose nesting areas during the spring probably helped to prevent predation upon known nests. Seventy-six 'coons were taken.

Badgers were seen only occasionally, usually in the more sandy soil portions of the refuge where their diggings were in evidence. Numbers are low.

Bobcat tracks were seen during the winter months, especially around the swamp area east of Rice Lake. One large animal was observed in late November crossing the entrance road east of the bridge. Status is uncommon but fresh signs were not difficult to find. Fish in the springs were a prime winter food.

A slight upswing in the number of skunks on the refuge was noted but control measures removed 11 in nesting areas. A moderate population exists.

Porcupines were fairly common over the entire refuge but no problems of tree damage were noted. Feeding was primarily on twigs of deciduous trees.

Red squirrels were common throughout the refuge; grays were uncommon and fox squirrels were rare.

Chipmunks were common; Franklin's ground squirrels were uncommon and 13-lined ground squirrels were fairly common.

Meadow voles and red-backed mice were regularly noted, as were white-footed mice. A few jumping mice were noted. Star-nosed moles, least and short-tailed shrews were fairly common.

Stray cats and dogs were seen occasionally.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies:

Some species of hawks were active on the refuge during most months of the year but most spring arrivals began to move in by mid-March. Summer residents and visitors included redtails, broadwings, rough-legs, marsh hawks, sparrow hawks, sharp-shins, Cooper's, goshawks and ospreys. Most of these species were present well into the fall and some, like roughlegs, remained into the winter. Turkey vultures were seen occasionally during the spring, summer and fall. Northern shrikes were present in fair numbers throughout the winter.

The first bald eagle noted on the refuge in the spring was an adult seen on March 8. On April 8, there were 12 seen along Rice Lake and the Rice River Pool. A pair was on the nest west of Rice Lake in March and two young were hatched. Summer observations were occasional but by early fall when migrating waterfowl began to arrive, bald eagles did also. The greatest number seen on a single day was 16, all of which were immatures. This was on October 30. Numbers fluctuated daily but rarely were there more than two adults to five young in the age composition. A single adult was last seen on November 26.

Among the owls using the refuge the barred owl continued to be most common. Great horned owls, though less common, were seen and heard occasionally, especially in the eastern portion of the refuge. Only one snowy owl was observed. This one was seen on March 24. The first great gray owl was noted on February 2, and from one to three could be found almost daily through April. The first observation of a saw whet owl was on March 28, when one chose to spend a day near the refuge headquarters. Screech owls could be heard in the river bottoms on summer evenings. Long-eared owls were uncommon.

For the first time in several years, crows were noted on the refuge throughout the entire twelve months. Generally they are absent during December and at least part of January. Croplands attracted them during the summer and fall and during the winter they fed on rough fish cast off during northern pike rescue operations. Several hundred used the refuge during the fall.

Ravens were present throughout the year and it was a simple matter to locate carrion as these birds were usually there first. Normally only singles or couples are seen but there were times when up to 35 or 40 would gather at good food sources.



Magpies remained occasional transients.

F. Other Birds:

The usual winter birds included such species as chickadees, white and red-breasted nuthatches, hairy and downy woodpeckers, pileated woodpeckers, evening and pine grosbeaks, purple finches, common redpolls, horned larks, snow buntings and pine siskins. The pine grosbeaks were unusually common. Gray jays were occasional visitors though they are common in neighboring areas. Black-backed, 3-toed woodpeckers were seen on several occasions in February. Summer birds included most of those on the refuge list. Bluebirds, tree swallows, house wrens and purple martins used houses furnished them at headquarters. Ruby-throated hummingbirds used feeders regularly.

G. Fish:

Northern pike rescue by State crews continued until February 10, when the lake outlet oxygen went dead. Island pumping was not successful in late winter though lead traps did take some fish. Water on the ice prevented access by trucks so a tank was hauled behind a snowmobile.

An excellent run of northern pike moved into Rice Lake during the spring and the hatch was heavy. Fishing was good throughout the summer in Rice River. Fish rescue at the lake outlet started October 23, and by December 31, the take was 40,568 northern pikes weighing 21,459 pounds. These were stocked in other lakes in the area which are open to public fishing and have public access. These, added to the late winter catch, made available many fish for sportsmen. Runs of bullheads and yellow perch were unusually light but dogfish were much more common than in other years. The outlet site was dead by the end of the year and successful pumping was started at the island. Rough fish again furnished much food to local residents and to some who came considerable distances for suckers and bullheads for smoking.

H. Reptiles and Amphibians:

Garter snakes were the most common reptile noted. Smooth-scaled green snakes and red-bellied snakes were less common. Snapping turtles were quite regularly seen along dikes and roadways, especially during the egg laying period. Painted turtles were also plentiful in ponds, lakes and streams. Spotted salamanders, leopard frogs, mink frogs, copper frogs, spring peepers, tree toads and common toads were all present in good numbers.

I. Disease:

No evidence of disease among refuge wildlife was noted.

III REFUGE DEVELOPMENT & MAINTENANCE

A. Physical Development:

A new underground power line was installed from the pole at the office to Residence 68; larger wire was used and a transformer was set up at the house. This improved power service considerably. At the same time a new telephone cable was laid in the same trench.

Seven new ponds were dug with the D-7 and dozer and five swampland areas were plugged with short dikes for waterfowl habitat development.

A new garbage pit was dug and the old dump was buried. On this and other fill projects 279 cubic yards of dirt were hauled.

New water gauges were installed on the Rice Lake and Rice River controls and one at the bridge was readjusted.

A new gas pump hood was constructed.

Many routine jobs of maintenance such as blading, mowing, snow plowing and others of that type were carried on. Log jams were removed from controls during high water and a large additional culvert installed to assist in moving water across the North Bog Road. Since this is a sand area, 18 cubic yards of clay were hauled to seat the culverts. That road was reshaped and all roads on the refuge received some gravel during the period. This amounted to 210 cubic yards hauled and spread. Several buildings at the refuge headquarters were repainted and repairs made where needed. New lands, including the 826 acre Wiita tract were posted and new fences were built on the northeast and northwest sides of the refuge. Several old wells were filled. Thirty-three cubic yards of rocks were picked from several farm units, a continuing job. Willows were sprayed to develop and maintain grasslands. Repairs were made to fill burrows in the Beaver Pool dike. The grease pit in the welding shop was filled and cemented over to make more work space. An oil furnace was installed in that shop and the coal unit removed. The old boathouse was moved and repaired and rollers were built to facilitate moving heavy units. Many other jobs were done, including brushing the old goose pen dike and nesting areas.

B. Plantings:

1 1. Aquatic and Marsh Plants:

One hundred and fifteen pounds of wild rice was seeded in the Rice Lake and West Field impoundments.

2. Trees and Shrubs:

None.

3. Upland Herbaceous Plants:

None.

4. Cultivated Crops:

Good field conditions in May permitted early access for working and seeding croplands. Cold, dry weather prevailed in early summer and crops were slow to germinate. Corn looked too small by July 1, to mature by freeze-up. During July the weather changed to warm nights and plenty of moisture. Crops caught up and produced a good yield for this area.

Corn strips were sprayed with atrazine. Excellent control of quack grass and weeds resulted. The 28 acres produced about 25 bushel corn which was used by several species of wildlife. Geese, sharpshooters and deer were primary users.

Oats was planted rather late. It produced summer browse and good conditions permitted the crop to mature. Blue and snow geese used the oats especially well. Twenty-two acres yielded 15 bushel oats.

Buckwheat was planted on 34 acres and produced at about eight bushels. This crop was used by many forms of smaller wildlife species such as song birds and grouse. Deer used it from early growing stage through maturity when they shared the fields with ducks.

Mowed browse strips of legumes such as red and alsike clover covered 70 acres. Hay yield was good and strips were well used by geese.

Rye strips produced 35 acres of browse and grain.

Sixty-one acres of farm land were kept fallow for mechanical weed control and rock picking.

C. Collections and Receipts:

The wild rice harvest got underway Monday, September 8, 1969. This was an earlier starting date than the last few years and it caught the refuge staff by surprise as the rice was still quite green. Normally the Indians wait until the crop is thoroughly ripe. Most of the ricing committee is now comprised of young Indians who live away from this area and move in only during the ricing period. Apparently they do not have the experience and knowledge of the older Indians and are not able to anticipate the proper harvest time as readily.

The committee was advised that the rice was still quite green but were allowed to proceed with their ricing plans as, traditionally, they have set the starting date. This early starting date was reflected in the pick - instead of the large greenish-brown kernel, the rice was green, small and prompted many buyers to remark that it didn't look like Rice Lake rice. Much of the rice beds had an heavy infestation of worms especially in the shallow water areas and the rice brought into the landing had many worms in it.

At the time the Indian Committee notified the Manager as to the starting date they were advised that the Court Order in effect the previous year had expired. They were further advised that the old procedures would be followed with the following exceptions: 1. The Committee would select the entire ricing list and 2. The Committee would be responsible for maintaining discipline. They were also given the choice of weighing in the rice and deducting the Governments' eight per cent but they declined, preferring to have the refuge staff do it. They did take upon themselves the selection and notification of ricers and to furnish us with a written list for our files. This list was never received.

The local Indians still maintain they should have exclusive control over Rice Lake ricing. Only local Indians or Indians from other areas that were in some way related to locals were allowed to rice. These other Indians were invited to rice as guests. At the end of the ricing day Friday, September 12, the Indians requested the rice beds be rested until the following Monday to give the rice a chance to ripen. This request was granted in an effort to maintain good working relations with the Committee. On Monday when ricing resumed, only 34 boats were out harvesting instead of the 56 allowed. Those that didn't show up had all kinds of excuses the following day. They don't seem to realize that they are the losers as the rice ripens and falls off whether they are there or not. The bulk of them had done too much celebrating over the weekend and couldn't work on Monday. One young lad spent most of the day fishing on the refuge fishing area. From this day on the pick fell off rapidly as the following table shows:

<u>Date</u>	<u>No. of boats</u>	<u>Ave. lbs./boat</u>	<u>Total lbs. picked</u>
Sept. 8	52	176	9,161
9	55	135	7,431
10	55	173	9,543
11	53	98	5,182
12	50	104	5,224
15	34	84	2,839
16	45	83	3,768
17	43	67	2,922
18	17	86	1,476
19	34	56	<u>1,916</u>
			49,462

Once again, it more or less proves that ten days is sufficient and is really about all the Indians can stand to work. The harvest went rather smoothly but without the control exercised in the past. Indians came and went as they pleased, started late, quit early, riced when they pleased without the worry of having their permit revoked. There were several drunk Indians at the landing but none drank while ricing. The Committee, as far as we could see, did little to maintain discipline and order. On the last day of ricing several of the Committeemen approached the Manager asking for additional days for ricing but the request was refused. Weather conditions during the harvest were favorable with mild temperatures and very little wind. Water levels were low making rice beds near shore in the shallows difficult to work. These areas are heavily utilized by waterfowl as rice is readily available to them.

A total of 56 boats, harvesting 10 days during the period September 8 to 19, picked a total of 49,462 pounds of rice. The Government share of eight per cent amounted to 3,958 pounds. Cash return to the Government was \$4,680.23 with 115 pounds retained for reseedling new refuge areas. The lowest price paid per pound of green rice was \$1.10 and the highest \$1.50. The average price paid was \$1.25. The average season take per boat (less the Govt. share of eight per cent) amounted to about 810 pounds which at an average price of \$1.25 gave each boat an income of \$1,012.50. Last year this income amounted to \$1,121.85 per boat. Based on the average of \$1.25 the best ricing team made about \$2,578 and the poorest \$344. The average harvest per boat this year came to 810 pounds compared to 831 last year. The average number of boats picking for the ten days was 43.7 and the lowest number of boats picking on any one day was 17.

The status of the court action against the Bureau and Refuge is unknown at the present time. The Manager and Biological Technician were ordered to Judge Lord's chambers on Friday, April 18, 1969 to

confer on how the 1968 rice harvest worked under terms of the court order. In addition, the Indian's attorney Mr. Hillstrom was present plus the U.S. Attorney, Patrick Foley. No Indians were present. The hearing took about an hour during which time Judge Lord was quite outspoken concerning the Refuge-Bureau stand on the matter. We were to appear in court again on Monday, April 21, 1969 but some arrangement was worked out between Judge Lord and the Bureau whereby we did not have to appear. That was the last information received on the proceedings. We are anxiously awaiting a final decision.

D. Control of Vegetation:

Control of willow was done with bulldozer, mower and spraying with a tractor mounted unit. This work was around the Rice Lake Pool and on several recently acquired tracts to keep small open fields from being taken over by willow. As mentioned in an earlier portion of this report atrazine was applied to the refuge corn fields at the rate of three pounds per acre. It was highly effective in control of quack grass and other weeds

E. Planned Burning:

Spring weather conditions made it impossible to follow the approved burning plan.

F. Fires:

None.

#### IV RESOURCE MANAGEMENT

A. Grazing:

Two permittees grazed a total of 32 animals for a total of 176 AUM's.

B. Haying:

Haying conditions were similar to those of 1968. In fact the total amount of hay cut was almost identical with 319.76 tons cut compared with 319 tons in 1968. Eight permittees worked the refuge and are the same people who have hayed here for many years.

C. Fur Harvest:

There was a small fur harvest on the refuge this year. About midway through the trapping season our only applicant applied for a permit

to trap muskrats on Rice Lake. Trapping on a limited scale due to a back injury he removed 54 muskrats in about a two week period. He began trapping at about the same time we had several heavy snowfalls and conditions were very poor with slush on the ice and all feeders covered. The Government share of 27 'rats came to the grand total of \$24.00.

D. Timber Removal:

None. A new timber management plan has been approved and cutting under it will begin in 1970.

E. Commercial Fishing:

None.

F. Other Uses:

None.

V FIELD INVESTIGATION OR APPLIED RESEARCH

A. Waterfowl Banding:

No mallard quota was set for this refuge during 1969 so although these ducks were readily taken in black duck traps, all were released unbanded. Unfortunately, black ducks were in short supply during the banding period and few were taken. Listed are the birds banded.

<u>Species</u>	<u>Hatching Year</u>		<u>After Hatching Year</u>		<u>Local</u>		<u>Total</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
Mallard				1			1
Mallard-Black	1		1				2
Black	8	3		1			12
Canvasback		1					1
Wood Duck	1						1
Widgeon	26	19	2				47
G. W. Teal			1	1			2
Blue-Winged Teal	1						1
Ring-necked Duck	1	5	2	1			9
Canada Goose	—	—	—	—	7	3	10
	38	28	6	4	7	3	86



The refuge again worked with the State of Minnesota to devise a means of trapping an adequate pre-season sample of ringnecks. Several hundred yards of leads and large trap proved unproductive as the birds were not in the area of the set in sufficient numbers. For this reason a planned drive was unsuccessful. It was planned to utilize the fact that often large numbers of these birds are reluctant or unable to rise off the water and can be moved some distance. Usable sites are limited by bottom conditions and water depth. Bait traps were ineffective.

Night lighting was one alternative method and trial runs indicated that this was probably the most promising for this area. It was found that ringnecks could be taken with a dip net if properly approached. Other species such as mallards, widgeon, teal and redheads could also be caught. Coots were easier to take than ducks, as a general rule. By the second night of work a fairly good take was made. Since a large enough sample could not be taken with the limited time and equipment, none of the ringnecks was banded, nor were other species. It was felt that a good crew with a reasonable population to work on and adequate access to sites of use could take 100 or more birds per night. Consideration will be given to the use of two or more units for next fall's ringneck banding operations. This appears to be the most practical approach with the limited time from arrival of the birds until the hunting season.

B. Canada Goose Flock:

The survey of the spread and nesting success of the refuge flock on outside areas was continued. The Biological Technician contacted landowners and mapped nest, pairs and other pertinent information such as site preference and production. Early data, substantiated by refuge information, indicates small ponds with good cover are preferred. In 1969 the Canadas still gathered at the refuge in spring and fall before moving out for nesting or migration. It will be interesting to note if this will continue in the future.

C. Artificial Nesting Sites:

1. Goose Platforms:

After four years of testing, the nearest observed thing to use by geese was an inspection on one of the platforms by a lone Canada. Although several types were available, none was accepted. Earthen or brush sites were readily used and some shoreline nesting also occurred. Good cover such as weeds or low brush appeared desirable to the birds.

2. Duck Platforms:

Duck platforms in favored mallard and teal nesting areas received no use. This was the third year of testing for this type of structure.

3. Wood Duck Structures:

The fiberglass capsules have endured four years of exposure to the elements with no apparent deterioration other than a flaking of the paint on some and bullet holes in others. Integral paint would eliminate the flaking. Nearly all painted ones were used by some species of bird and no predation was noted in any of them. Wood ducks and hooded mergansers used twelve of the 96 structures out. Of these, five were translucent originals left uncolored as a check. Entrances are difficult to discern and none of these has been used by any form of wildlife.

The twenty western cedar houses built and erected a year ago showed increased use this year and produced the only known brood of common goldeneyes raised on the refuge. All of these units are on pipe stands over water.

Two metal nest boxes were erected on flooded trees in a pond. Both of these houses were used by wood ducks and produced broods.

D. Rice Borer Study:

The employees of the Minnesota Department of Agriculture again pursued their rice borer study with considerable equipment. This constituted the third year of the study but no evaluation of data has been made to-date.

E. Soil Mapping:

The mapping of all refuge soils was carried on by two soils scientists of the U.S.D.A. with the occasional help of refuge personnel and consultation with the Aitkin County Soil Conservationist. All field work was completed and a plan is being developed. Previously mapped lands in farm units were redone. Cost to the refuge will be approximately \$1,500. Benefits should be considerable.

F. Timber Management:

A new timber management plan was approved. All timber and wetlands were inventoried.

VI PUBLIC RELATIONS

A. Recreational Uses:

Sightseeing tours of the refuge by local residents and their friends are high on the list of uses. Visitors also come from considerable distances to see the young geese, the deer, foxes and occasional

bear and to view other features of the refuge. School groups and others find much to learn from nature. During the summer the student and adult classes from the Long Lake Conservation Center spend one day of each ten day session on the refuge to study ecological relationships. Scout and 4-H groups also use the area for educational purposes. Most enjoy using the picnic area. Hunting and fishing are also big attractions.

B. Refuge Visitors:

See attached list.

C. Refuge Participation:

See attached list.

D. Hunting:

1. Deer Hunting:

For the second year the refuge was in a zone with a shortened deer hunting season and for the second year the season was shortened by two days. The result was a five day refuge hunt for deer. Although the season was shorter, hunting pressure was up slightly from the previous year and the kill was up comparably. Sixty deer were taken by 606 hunters during the five days for a success ratio of 10 per cent; the same ratio as in 1968. That year 53 deer were taken by 519 hunters. The kill ran heavy to adult deer with nearly half of the total kill adult bucks. There were 43 adults to 17 fawns among the deer checked. This heavy ratio of adults was also the case in 1968.

During both of the past two years there was no snow for the opening but conditions for tracking and visibility improved slightly later in the season. More than half (36) of the deer were taken on the opening day. Hunters in adjoining areas reported fair to poor success.

The winter carryover was low but adequate in most areas. Deer concentrated in the corn fields until heavy snow moved them into the yards. Some of these moved off the refuge to the Dam Lake area.

2. Waterfowl Hunting:

Duck hunting for divers was fair to good on lakes in the refuge vicinity. Ringnecks were the prime target species. The best mallard shooting was had on the river areas where open water remained late in the season.

B. Refuge Visitors:

<u>Name</u>	<u>Organization</u>	<u>Date</u>	<u>Purpose</u>
Larry Bunge	Minnesota State Forester	1/23/69	Timber cruising adj. refuge
Harry Pinkham	U.S.G.M.A.	2/26	Enforcement & surplus prop.
Joe Wilson	Minnesota State Forester	2/27	Fire Warden commission
Lawrence Gubbe	Minnesota State area Forester		Fire agreement
Henry Wolf	Minnesota area Biologist	5/8	Kimberly development
Dave Dickey	Minnesota district Biologist	5/8	Kimberly development
Ralph Chaney	U. S. Geological Survey	6/9	Maps re surveying area
Jay Paulson	Retired Horicon Refuge mechanic	6/17	Visit
Bob Balou	C.O.	6/17	Visit enroute
Wm. Aultfather	Bureau Forester	6/18-20	Forestry practices
Bob Johnson	Bureau Forester	6/18-20	Forestry practices
Claire Rollings	Regional Office- Staff Specialist	6/24	S&M practices
William Green	Biologist - Upper Miss.	6/25-26	Inspection
D. Floyd	Bureau of Indian Affairs	7/1	Check on Indian employee
T. Atkins	Maintenanceman- Arrowwood Refuge	7/2	Visit
Wm. Ellerbrock, Jr.	U.S.G.M.A.	7/17	Banding equipment
Dave Dickey	Minnesota district Biologist	8/18	Kimberly marsh dike
Bob Johnson	Bureau Forester	8/18	Timber Management Plan
Chuck Griffith	Conservation Education Officer - R.O.	8/21	Conservation Center program
James Monnie	Asst. Regional Supervisor	10/8	Tour
John Ellis	Regional Biologist	10/8	Tour
Stan Devereaux	British Columbia	10/8	Tour
W. A. Morris	British Columbia	10/8	Tour
John Carlsen	Asst. Regional Supervisor	10/10	Enroute
R. Paulson	Soils Scientist (S.C.S.)	Sept. & Oct.	Map refuge soils
J. Sharp	Soils Scientist (S.C.S.)	Sept. & Oct.	Map refuge soils
Royce Lewis	Soils Scientist (S.C.S.)	10/10	Check refuge soils
Jack Gilbertson	F.H.A.	10/30	Rent appraisals

In addition there were frequent visits by local residents, Mr. Les Dundas of the R.O. while instructing at the Long Lake Conservation Center and the Minnesota State Fisheries crew while engaged in fish rescue work.

<u>Group</u>	<u>Date</u>	<u>Participation</u>
Aitkin County 4-H	1/5/69	Assist with fishing contest.
Technical Action Panel	1/15	Monthly meeting.
Aitkin County Deer Status Meeting	1/30	Observe & make comments.
McGregor Flower Club	2/5	Talk and slides.
Aitkin County 4-H	2/10	4-H project meeting.
Technical Action Panel	2/11	Monthly meeting.
County Deer Status Meeting	2/13	Comment on refuge herd.
Arrowhead District TAP Meeting	2/27	Attend with local TAP.
4-H Awards Meeting	3/1	Awards meeting.
Technical Action Panel	3/12	Monthly meeting.
Minnesota Forestry Div.	4/1	Meet re fire protection.
McGregor Boy Scouts	4/8	Talk and slides.
East Lake Cooperative	4/18	Talk and slides.
District Judge Lord	4/18	Meet re Indian ricing.
Aitkin County Land Class. Comm.	4/30	Meet re land classification.
Methodist Youth Fellowship	5/1	Hike on refuge.
5th Grade - Hibbing, Minn.	5/13	Refuge tour.
Technical Action Panel	5/14	Monthly meeting.
Long Lake Cons. Center	5/15-16	Instructor training.
Aitkin Senior Biology Class	5/20	Refuge tour.
Sturgeon Lake 4-H Club	6/16	Talk and slides.
Soil Conservation Service	6/17	Re refuge soils mapping.
Pine, Itasca, Carlton and Aitkin 4-H Clubs	6/18-19-20	Refuge tours.
Long Lake Cons. Center	6/26	Demonstration & talk.
Technical Action Panel	7/9	Monthly meeting.
Long Lake Cons. Center	7/10	Talk & banding demonstration.
Long Lake Cons. Center	7/24	" " " "
Technical Action Panel	8/6	Monthly meeting.
Long Lake Cons. Center	8/7	Talk & demonstration.
Long Lake Cons. Center	8/21	Talk & demonstration.
Aitkin Counth Land Class. Comm.	8/28	Meet re land classification.
Minnesota Conservation Dept.	9/2	Meet re ring-neck banding.
Indian Ricing Committee	9/3	Meet re Rice Lake ricing.
Brainerd Voc.-Tech. School	9/9	Talk and tour, Cons. class.
McGregor Flower Club	10/1	Attend meeting.
Long Lake Cons. Center	10/8	Attend banquet.
Trumpeter Swan Society	10/8	Attend meeting.
Technical Action Panel	10/9	Monthly meeting.
Bird Club	10/12	Refuge tour.
Technical Action Panel	11/12	Monthly meeting.

In addition there were many small refuge tours for visitors and miscellaneous small groups.

Canada geese fed in local fields off the refuge and provided some shooting for mostly local hunters. Total kill was moderate, usually made by sneaking up on feeding birds in fields or on local streams. Blue and snow geese were not plentiful enough to provide much action.

3. Grouse Hunting:

A ruffed grouse season was held on the refuge for the first time. Hunting pressure was light to moderate. Birds were not plentiful enough to provide good hunting and kills were generally light. The most common question asked by hunters was, "Why was it opened?" Those hunters with good dogs experienced the most success.

E. Fishing:

The refuge fishing season provided many hours of fishing from May through September. Some days success was better than others but there were always some northern pike in evidence on stringers. Bullheads were also taken quite readily. The bridge with its fishing walks was most appreciated by the older folks. The ardent bait-casters used the boat ramp and other shoreline spots.

F. Violations:

Many hours were spent on patrol of the refuge with most contacts of an educational nature. Violations were prevented in several instances, especially those of trespass. One case of shooting at a deer in a closed area from a car was reported but no evidence of a kill could be found. There was some evidence of night ricing before the season but late waits brought nothing more than cold and tired bodies of refuge personnel. Some snowmobile trespass also developed. Generally, behavior by most refuge visitors and hunters was good.

G. SAFETY:

SAFETY meetings were held periodically with all personnel participating. As conditions or practices needing correction were noted, they were immediately brought up and discussed in pre-work meetings also.

No serious injuries or lost-time accidents were experienced during the year and the crew is to be commended.



## VII OTHER ITEMS

### A. Items of Interest:

The Refuge Manager prepared Section I, part B, Section II, Section III, part A, Sections V, VI, VII, of this report. The Biological Technician prepared Section I, part A, Section III, parts C., D., E., Section IV and also assembled and typed the report.

Under the revenue sharing program a check for \$3,025.47 was presented to the Aitkin County Auditor for use on schools and roads.

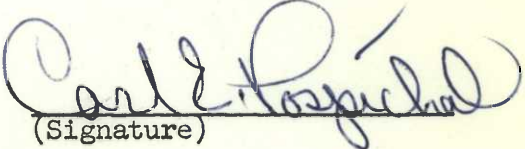
The Refuge Manager served as 4-H leader in Conservation and in photography. He also served on the Aitkin Technical Action Panel and on the County Land Review Panel during 1969.

All photographs were taken and processed by the Refuge Manager.



SIGNATURE PAGE

Submitted by:

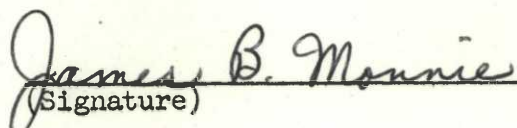
  
(Signature)

Carl E. Pospichal  
Refuge Manager  
Title

Date: March 13, 1970

Approved, Regional Office:

Date: 3-16-70

  
(Signature)

Regional Refuge Supervisor

69-1

Thornbloom at white cedar stripped by  
a black bear. Claw marks are visible.

C.E.P.



69-2

Typical damage to oak tree by bear  
seeking acorns.

C.E.P.





69-3

White-tail carrion cached by a black bear. The bear was observed by Thornbloom and Pospichal to drag the carcass from a water-filled ditch and eat the viscera. It later returned and took the remainder. Cause of deer's death unknown.

C.E.P.





69-4

Beavers took advantage of the situation  
at the Freeman Bridge, township road on  
south refuge boundary.

C.E.P.





69-5

Hurd poses with a very nice white-tail.

C.E.P.





69-6

A real artifact. Ancient dugout canoe  
as it was found in Twin Lake.

C.E.P.





69-7

The dugout as it appeared after salvage by Pospichal and son, Mark. Its waterlogged condition made it heavy and slippery to handle, fragile as it appeared. Mark had located it a year earlier but did not get as excited about it as some of the later viewers.

C.E.P.





69-8

Another artifact worth consideration.  
Hand-hewn log buildings such as this  
house were true works of skilled  
Scandinavian craftsmanship in the  
early days of this area.

C.E.P.



69-9

Though the temperature was well below zero, this saw-whet owl appeared content to sleep in the winter sunshine.

C.E.P.





69-10

A young naturalist intensely interested  
in a successfully hatched ruffed  
grouse egg.

C.E.P.



69-11

What are you doing up here?

C.E.P.





69-12

Since it snowed most of the night, this porcupine apparently came home mighty late. Bachelor quarters?

C.E.P.





69-13

Natural tamarack reproduction on roadside  
area scalped to mineral soil.

C.E.P.



69-14

Natural red pine reproduction on higher ground, also scalped for trail construction. This practice has shown good results in other promising areas. White pine, spruce and balsam have also come in, along with aspen, hard maple, white birch and other species.

The white pines in the background are favored bald eagle roosts used by several birds during the fall months.

C.E.P.







69-15

A fall view of typical Rice River wood  
duck habitat. Nesting capsules are  
fiberglass.

C.E.P.



69-16

A new, glass-roofed gas pump cover  
complete except for end caps. Record  
box is mounted on pump.

C.E.P.







69-17

Hurd working on one of ponds and potholes  
constructed or rehabilitated during 1969.

C.E.P.



69-18

The going got pretty tough in the deer  
yards in January.

C.E.P.





69-19

Typical plug thrown across drainages  
to retain spring runoff water in low  
areas and create waterfowl habitat.

C.E.P.





3-1750a

Cor NR-1

(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)REFUGE Rice LakeMONTHS OF January TO April, 19 69

(1) Species		(2) Weeks of reporting period							(3) Estimated	(4) Production
		April	May	June	July	August	September	October	waterfowl	Broods
		9	11	15	16	22	23	29	30-5	6-15
		12	19	17	18	days use	seen	total		
<b>Swans:</b>										
Whistling						10	10	10	210	
Trumpeter										
<b>Geese:</b>										
Canada			15	30	50	250	500	750	150	9,548
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<b>Ducks:</b>										
Mallard				10	300	500	1,500	800	21,770	
Black						100	200	100	2,800	
Gadwall										
Baldpate						250	1,500	1,000	19,250	
Pintail				10	200	100	50		2,520	
Green-winged teal						10	300	1,000	9,170	
Blue-winged teal						50	500	2,000	17,850	
Cinnamon teal										
Shoveler						10	250	100	2,520	
Wood				10	30	500	500		7,280	
Redhead							50	50	700	
Ring-necked						100	350	500	6,650	
Canvasback							150	50	1,400	
Scaup						150	1,000	2,500	25,550	
Goldeneye					200	250	100		3,850	
Bufflehead				10	100	100			1,470	
Ruddy										
Other Hooded Merganser					250	300	150	100	5,600	
<b>Coots:</b>										
Common Merganser				10	100	50		500	4,270	
Red-breasted Merganser									11,120	
Greater Scaup						200	10		210	
						10			210	



	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	210	10	
Geese	9,548	500	
Ducks	129,920	8,750	
Coots	4,270	500	

# SUMMARY

Principal feeding areas Rice Lake, Rice River Pool,  
small pools and impoundments and fields.

Principal nesting areas \_\_\_\_\_

Reported by

Carl E. Pospichal

Carl E. Pospichal; Refuge Manager

## INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.

1953



WATERFOWL

REFUGE Rice Lake

MONTHS OF January TO April, 19 69

(1) Species	(2) Weeks of reporting period																														
	Jan.				Feb.				Mar.																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Swans:																															
Whistling																															
Trumpeter																															
Geese:																															
Canada																															
Cackling																															
Brant																															
White-fronted																															
Snow																															
Blue																															
Other																															
Ducks:																															
Mallard																															
Black																															
Gadwall																															
Baldpate																															
Pintail																															
Green-winged teal																															
Blue-winged teal																															
Cinnamon teal																															
Shoveler																															
Wood																															
Redhead																															
Ring-necked																															
Canvasback																															
Scaup																															
Goldeneye																															
Bufflehead																															
Ruddy																															
Other																															
Coot:																															

(Nov. 1945)

Months of January to April 1969

Refuge.....

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common Loon	2	4/18	10	4/20	Summer resident					
Pied-billed Grebe	1	3/24	100	4/12	Summer resident					
Horned Grebe	2	4/20	20	4/22						
Great Blue Heron	1	3/24	100	4/10	Summer resident		1 Island colony deserted but nest-building was in progress along Rice River for a new colony.			
Double-crested Cormorant	1	4/20	No longer a nester on the refuge							
American Bittern	1	4/18	Common summer resident							
Sandhill Crane	2	4/12	Summer resident							
Belted Kingfisher	1	4/10	Common summer resident							
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	3	4/4	Common thereafter; summer resident							
Common Snipe	1	4/11	Very common summer resident							
Spotted Sandpiper	1	4/26	Common by 4/29; summer resident							
Lesser Yellowlegs	4	4/26	14	4/28						
Ring-billed Gull	7	4/8	Common thereafter; summer visitor							
Herring Gull	3	4/16	Occasional visitor							
III. <u>Doves and Pigeons:</u>										



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	10 4/14	Uncommon summer resident			
IV. <u>Predaceous Birds:</u> Golden eagle (bald) Buck hawk (red-tailed) Horned owl Magpie Raven Crow Belted Scribe Great Gray Owl Barred Owl Snowy Owl Saw Whet Owl Goshawk Marsh Hawk Rough-legged Hawk Screech Owl	1 2 Year-round resident; occasional observation Occasional winter sighting 2 1 1 1 1 1 1 1 1 1 1 3 3	12 4/8 Fairly common summer resident Year-round resident; occasional observation Occasional winter sighting Year-round visitor; fairly common Very common summer resident Common during winter Present through April in small numbers (1-3) 20 Year-round resident Only one noted this winter Occasional year-round 30 Summer resident 10 Year-round vis. 50 Summer resident	Summer resident		
Capree Turkey Vulture	1 1	Occasional summer visitor			

Reported by \_\_\_\_\_

#### INSTRUCTIONS

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.



3-1752  
Form R-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Pice Lake Months of January to April, 1946

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat Acres per Bird	Number broods obs'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	5,000 acres timber and brush	25			200	First drumming heard on 4/16; at end of period there seems to be less drumming than at the same time in 1968.
Sharp-tailed Grouse	1,200 acres grass, brush & cropland	120			10	Occasional observation of 1-3 during winter and spring; status low.
Woodcock	8,000 acres timber, brush, grassland and marsh					No sightings to end of April.



# INSTRUCTIONS

## Form NR-2 - UPLAND GAME BIRDS.\*

- |                     |  |
|---------------------|--|
| (1) SPECIES:        | Use correct common name.   |
| (2) DENSITY:        | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.  |
| (4) SEX RATIO:      | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.  |
| (5) REMOVALS:       | Indicate total number in each category removed during the report period.   |
| (6) TOTAL:          | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.   |
| (7) REMARKS:        | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.  |

\* Only columns applicable to the period covered should be used.



3-1754  
Form NR-4  
(June 1945)

# SMALL MAMMALS

Refuge Elise Lake

Year ending April 30, 1962

(1) Species	(2) Density	(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion		
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Badger														10
Beaver				3										75
Franklin's Ground Squirrel														Uncommon
13-lined Ground Squirrel														V. Common
Snowshoe Hare														Uncommon
Cottontail Rabbit														Rare
Mink														50
Muskrat														200
Otter														10
Porcupine														100
Raccoon					102									300
Striped Skunk					30									200
Fox Squirrel														Uncommon
Gray Squirrel														V. Common
Red Squirrel														Common
Flying Squirrel														V. Common
Chipmunk														Common
Weasel														V. Common
Woodchuck														V. Common
Red Fox					5									20
Coyote														10
Bobcat														10

\* List removals by Predator Animal Hunter

\* List removals by Predator Animal Hunter

REMARKS: Muskrats were down considerably from last year; Raccoons do not appear to be quite as numerous and coyotes have increased; five were seen one day in March.

Reported by \_\_\_\_\_

# INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
  - (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
  - (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
  - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
  - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

WATERFOWL

REFUGE Rice Lake Refuge

MONTHS OF May TO August, 1969

(1) Species	(2) Weeks of reporting period									
	May 4-10	11-17	18-24	25-31	June 1-7	8-14	15-21	22-28	29-5	6-12
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	150	150	200	250	270	280	250	300	250	250
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	1,000	1,000	500	400	600	600	700	700	800	800
Black	100	50	30	10	30	30	30	30	40	40
Gadwall										
Baldpate	1,000	1,000	500	500	500	400	400	400	500	500
Pintail	50	30	10							
Green-winged teal	1,000	1,000	500	200	200	200	300	300	300	300
Blue-winged teal	1,500	1,200	1,000	600	600	600	800	800	800	1,000
Cinnamon teal										
Shoveler	100	100	20	10	10	10	10	10	20	20
Wood	500	500	700	800	900	1,000	1,200	1,200	1,200	1,200
Redhead	50	50								
Ring-necked	800	500	400	50	50	50	70	70	70	70
Canvasback	100	100	50	10	10	10	20	20	20	20
Scaup	3,000	3,000	2,000	500	20	20	30	30	30	30
Goldeneye						12	12	12	12	12
Bufflehead										
Ruddy										
Other Hooded Merg.	150	150	100	200	250	250	250	250	250	250
Coot:	500	500	100	50	50	100	100	100	100	100



3-1750a  
Cor NR-1  
(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)

REFUGE Rice Lake Refuge MONTHS OF May TO August, 19 69

(1) Species	(2) : July Weeks of reporting period : August : : 13 - 19 : 20 - 26 : 27 - 2 : 3 - 9 : 10 - 16 : 17 - 23 : 24 - 30 : : 11 : 12 : 13 : 14 : 15 : 16 : 17 : 18								(3) : Estimated : : waterfowl : : days use	(4) : Production : : Broods: Estimated : : seen : total	
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	300	300	350	350	350	350	400		33,250	30	150
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	800	800	1,000	1,000	1,200	1,500	2,000		107,800	20	250
Black	40	40	50	50	100	150	200		7,140	1	15
Gadwall											
Baldpate	500	600	600	600	700	700	800		71,400	18	300
Pintail			10	30	50	50	200		3,110		
Green-winged teal	300	300	300	400	400	400	500		48,300	12	150
Blue-winged teal	1,000	1,000	1,000	1,000	1,200	1,200	2,000		121,100	26	320
Cinnamon teal											
Shoveler	20	20	20	20	20	30	30		3,290		10
Wood	1,200	1,200	1,200	1,200	1,400	1,500	1,500		128,800	32	350
Redhead			10	10	20	20	30		1,330		
Ring-necked	70	70	70	80	80	80	100		18,760	2	30
Canvasback	20	20	20	20	20	20	20		3,500	1	10
Scaup	30	30	30	20	20	20	20		61,810		10
Goldeneye	12	12	12	12	12	12	12		1,008	1	10
Bufflehead											
Ruddy											
Other Hooded Merg.	250	250	250	250	250	250	250		26,950	13	150
Coots:	100	100	100	100	100	100	100		16,900	7	50
					(over)						

	(5)	(6)	(7)	SUMMARY
	Total Days Use :	Peak Number :	Total Production	
Swans	:	:	:	Principal feeding areas <u>Rice Lake, Rice River, other</u>
Geese	33,250 :	400 :	150 :	<u>lakes and pools.</u>
Ducks	604,298 :	9,350 :	1,605 :	Principal nesting areas <u>Islands and shorelines of</u>
Coots	16,800 :	500 :	50 :	<u>above areas.</u>
				Reported by _____
				<u>Carl E. Pospichal; Refuge Manager</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.

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3-11205



3-1750  
Form NR-1B  
(December 1956)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
Fish and Wildlife Service

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Rice Lake For 12-month period ending August 31, 1969

Reported by Carl E. Pospischal Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type      Acreage	(3) Use-days	(4) Breeding Population	(5) Production
<b>Rice Lake</b>	Crops      --	Ducks      1,750,000	650	350
	Upland      --	Geese      20,000	12	30
	Marsh      500	Swans      3,000	--	--
	Water      4,500	Coots      445,000	50	50
	Total      5,000	Total      2,218,000	712	430
.....				
<b>Rice River Pool</b>	Crops      --	Ducks      580,000	300	180
	Upland      240	Geese      20,000	12	20
	Marsh      1,550	Swans      --	--	--
	Water      1,200	Coots      3,000	--	--
	Total      2,990	Total      603,000	312	200
.....				
<b>Rice River and Tributaries</b>	Crops      --	Ducks      200,000	1,150	500
	Upland      245	Geese      35,000	30	40
	Marsh      300	Swans      10	--	--
	Water      65	Coots      2,000	--	--
	Total      650	Total      237,010	1,180	540
.....				
<b>Ponds, Potholes and Ditches</b>	Crops      --	Ducks      151,000	980	475
	Upland      175	Geese      2,000	46	60
	Marsh      1,065	Swans      --	--	--
	Water      73	Coots      570	--	--
	Total      1,313	Total      158,378	1,026	535
.....				
<b>Muddy and Twin Lakes</b>	Crops      --	Ducks      25,000	100	50
	Upland      70	Geese      500	--	--
	Marsh      100	Swans      --	--	--
	Water      106	Coots      500	--	--
	Total      276	Total      26,000	100	50
.....				
<b>Agricultural Units</b>	Crops      241	Ducks      191,420	300	50
	Upland      97	Geese      17,842	--	--
	Marsh      --	Swans      --	--	--
	Water      --	Coots      --	--	--
	Total      338	Total      209,262	300	50
.....				
<b>Grand Totals</b>	Crops      241	Ducks      2,897,428	3,280	1,605
	Upland      827	Geese      100,742	100	150
	Marsh      3,555	Swans      3,010	--	--
	Water      5,944	Coots      450,870	50	50
	Total      10,567	Total      3,451,650	3,430	1,805

(over)



All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August narrative report.

#### INSTRUCTIONS

- (1) **Area or Unit:** A geographical unit that, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. Estimated acreage of each unit should be indicated.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland consists of all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type including wet meadow and deep marsh; and the water category includes all other water areas inundated most or all of the growing season and extends from the deeper edge of the marsh zone to strictly open-water areas, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for each type should be kept as accurate as possible through reference to available maps supplemented by periodic field observations and should agree with unit acreage.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.



3-1751

Form NR-1.

(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)Refuge Rice LakeMonths of May to August 1969

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common Loon	Summer Resident									20
Pied-billed Grebe	" "									250
Horned Grebe	Spring Migrant									150
Great Blue Heron	Summer Res.									100
American Bittern	" "									75
Common Egret	Summer Vis.		2	5/15						5
Sandhill Crane	Summer Res.									8
Sora	" "									1000
Virginia Rail	" "									200
White Pelican	Summer Vis.		3	6/3						6
Belted Kingfisher	Summer Res.									20
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	Summer Resident									250
Golden Plover	Migrant Vis.		5	5/24						5
Common Snipe	Summer Res.									1,000
Spotted Sandpiper	" "									200
Least Sandpiper	Migrant Vis.									100
Pectoral Sandpiper	" "									100
Greater Yellowlegs	" "									30
Lesser Yellowlegs	" "									200
Wilson's Phalarope	" "									75
Black Tern	Summer Res.		250	8/25					50	300
Common Tern	" "		150	8/11						250
Ring-billed Gull	Summer Vis.									200
Herring Gull	" "									100
Franklin's Gull	Occasional Vis.		2	8/11						10

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	Summer Resident	(uncommon)			30
White-winged dove					
IV. Predaceous Birds:					
Golden eagle (Bald)	Summer Resident			1	30
<del>Blue-backed</del> Screech Owl	Resident			1	20
Horned owl	Resident				30
<del>Magpie</del> Barred Owl	Resident				50
Raven	Resident				50
Crow	Summer Resident				1,000
Red-tailed Hawk	" "				50
Broad-winged Hawk	" "				100
Rough-legged Hawk	Vis.				50
Marsh Hawk	Summer Res.				100
Sparrow Hawk	" "				200
Sharp-shinned Hawk	" "				20
Cooper's Hawk	" "				10
Goshawk	Res.				5
Reported by <i>Paul H. H. H.</i>					

Caprey

Turkey Vulture

(1) Species:

Summer Vis.

### INSTRUCTIONS

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.



(April 1946)

## UPLAND GAME BIRDS

1613

Refuge Rice LakeMonths of May to August, 1969

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	5,000 acres brush and timber	12	7	200		400	Spring drumming, nest and brood observations fair to good. Birds not much in evidence as of 8/31 may indi- cate pop. not up to expect- ations.
Sharp-tailed Grouse	1,200 acres grass, brush and crop- land.	40	1	15		30	Very little activity on dance- ing grounds. One brood noted; largest flock seen was 16.
Woodcock (mig.spp.)	8,000 acres brush, timber, grass and marsh.	160	--	10		50	Very low nesting population. Single birds noted occasion- ally in late evening.



# INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\* Only columns applicable to the period covered should be used.

WATERFOWL

REFUGE Rice Lake

MONTHS OF September TO December, 1969

(1) Species	(2) Weeks of reporting period									
	Sept. 8/31-9/6	7-13	14-20	21-27	Oct. 28-10/4	5-11	12-18	19-25	26-11/1	10-8
Swans:										
Whistling									70	250
Trumpeter										
Geese:										
Canada	400	400	500	500	500	750	800	750	500	450
<del>Cackling</del> Lesser						200	200	200	150	50
Brant										
White-fronted										
Snow				30	50	150	1,200	300	300	200
Blue				30	50	100	800	100	200	150
Other										
Ducks:										
Mallard	2,000	2,000	2,000	4,000	10,000	15,000	20,000	15,000	20,000	15,000
Black	150	150	150	250	250	500	600	400	500	800
Gadwall						10	100	50		
Baldpate	1,000	1,200	1,200	10,000	10,000	6,000	3,000	1,000	500	500
Pintail	300	300	300	500	500	1,000	1,000	200	100	50
Green-winged teal	500	500	500	1,000	6,000	5,000	6,000	3,000	1,000	600
Blue-winged teal	3,000	3,000	3,000	5,000	5,000	2,000	500			
Cinnamon teal										
Shoveler	30	30	30	50	50	100	100	50		
Wood	2,000	2,000	2,000	2,000	2,000	1,500	1,000	500	300	300
Redhead	30	50	50	100	300	500	1,000	500	200	50
Ring-necked	100	100	100	10,000	15,000	50,000	50,000	45,000	30,000	10,000
Canvasback	20	20	20	100	250	1,500	2,000	3,000	5,000	2,000
Scaup	20	20	20	20	20	100	1,000	1,000	5,000	5,000
Goldeneye	10	10	10	10	10	10	20	20	100	50
Bufflehead							20	20	50	50
Ruddy										
Other Hooded Merg.	250	250	250	250	250	300	500	500	500	300
	100	200	500	5,000	10,000	8,000	3,000	3,000	700	200
Coot:										



3-1750a

Cor. NR-1

(Rev. March 1953)

## WATERFOWL

(Continuation Sheet)

REFUGE

Rice Lake

MONTHS OF September

TO December

, 19 69

(1) Total Production:		(2) Weeks of reporting period							(3)	(4)
		Nov.	16-22	23-29	30-12	7-13	14-20	21-27	28-1/3	Estimated Production
(e) Species		11	12	13	14	15	16	17	18	waterfowl Broods: Estimated seen: total
Swans:										
Whistling		200								3,640
Trumpeter										
Geese:										
Canada		450								42,000
Cackling Lesser										5,600
Brant										
(3) White-fronted										
Snow		150								16,600
Blue		100								10,710
(5) Other										
Ducks:										
Mallard		10,000								805,000
Black		400								29,050
Gadwall										1,120
Baldpate		50								241,150
Pintail										29,750
Green-winged teal		300								170,800
Blue-winged teal										150,500
Cinnamon teal										
Shoveler										3,080
Wood		100								95,900
Redhead										19,460
Ring-necked		500								1,475,600
Canvasback		100								98,070
Scaup		2,000								99,400
Goldeneye		10								1,820
Bufflehead		10								1,050
Ruddy										
Other Hooded Merg.		100								24,150
Coots:										
		50								30,750

(over)



	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	3,640	250	
Geese	74,970	3,000	
Ducks	3,245,900	86,840	
Coots	215,250	10,000	

# SUMMARY

Principal feeding areas Rice Lake, Rice River Pool,  
fields and small impoundments.

Principal nesting areas \_\_\_\_\_

Reported by

Carl E. Pospichal  
Carl E. Pospichal, Refuge Manager

Total waterfowl days' use 3,355,260

## INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.

(HSA) March 1953

COPIES

3-11205



(Nov. 1945)

(other than waterfowl)

Refuge Rice Lake Months of September to December 1969

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
<b>I. Water and Marsh Birds:</b>										
Common Loon	Summer	Resident	10	10/14	2	10/27				
Pied-billed Grebe	Summer	Resident	100	10/7	1	10/29				
Great Blue Heron	Summer	Resident	50	9/1	1	10/29				
American Bittern	Summer	Resident	30	9/1	3	9/19				
Sora	Summer	Resident	500	9/19	1	10/7				
Virginia Rail	Summer	Resident	30	9/15	1	9/19				
Sandhill Crane	Summer	Resident	4	10/29	4	11/6				
Kingfisher	Summer	Resident	10	10/14	2	11/8				
<b>II. Shorebirds, Gulls and Terns:</b>										
Killdeer	Summer	Res.	100	9/1	1	10/17				
Semi-plmated Plover			10	9/19						
Black-bellied Plover	2	9/1	2	9/1						
Common Snipe	Summer	Res.	300	9/19						
Spotted Sandpiper	Summer	Res.	100	9/9	5	11/9				
Pectoral Sandpiper			50	9/9						
Least Sandpiper			10	9/1						
Lesser Yellowlegs			100	10/19	15	11/10				
Black Tern	Summer	Res.	50	9/1	30	9/16				
Common Tern	Summer	Res.	100	9/1	10	9/16				
Ring-billed Gull	5	9/1	20	10/7	15	11/9				
Herring Gull	2	9/9	5	10/14	3	10/30				

(1)	(2)	(3)	(4)	(5)	(6)
<b>III. Doves and Pigeons:</b>					
Mourning dove					
White-winged dove					
<b>IV. Predaceous Birds:</b>					
Goshawk eagle (Bald)	Summer Res.	16	10/30	1	11/26
Duck hawk Barred Owl	Perm. Res.	20	9/1		
Horned owl	Perm. Res.	10	9/1		
Magpie	1	11/9	1	11/9	
Raven	Resident	30	11/26		
Crow	Summer Res.	500	10/1	5	End Rd.
Long-eared Owl	1	12/5	1	12/5	
Screech Owl	Res.	5	12/5		
Marsh Hawk	Summer Res.	30	10/14	2	11/12
Rough-legged Hawk	10	9/1	30	10/29	1
Broad-winged Hawk	Summer Res.	10	9/1	4	9/22
Sparrow Hawk	Summer Res.	20	9/22		
Red-tailed Hawk	Summer Res.	3	9/22		
Goshawk	Res. Occas. sighting				
Cooper's Hawk	1	9/11	5	9/20	1
Sharp-shinned Hawk	2	9/1	10	9/10	
Osprey	Occ. Visitor				

Reported by

Carl E. Pospichal; Refuge Mgr.

#### INSTRUCTIONS

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.



3-17500  
Form NR-1C  
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Rice Lake NWR

Year 1969

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
			No waterfowl hunting on refuge.					

(over)

WATERFOWL HUNTER KILL SURVEY  
Form No. 1  
(Sept. 1960)  
Nice Lake WMA  
Refuge

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent.  $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$



3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Rice Lake

Months of September to December, 1969

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acreage	Per Bird		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage			Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	5000 acres timber and brush	16						300	No notable change from a year ago.
Sharp-tailed Grouse	1200 acres grass brush and cropland	30						40	Population about double that of a year ago. More sightings; larger groups.
Woodcock	8,000 acres timber, brush, grassland and marsh.	160						50	Low population; light mig- ratory use.



# INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.



3-103  
Form NR-3  
(June 1945)

BIG GAME

Refuge Rice Lake

Calendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number								Number	Source		
White-tailed Deer	12,000 acres marsh and upland	50	60									150	50
Moose	12,000 acres marsh and upland	--	-									2	--
Black Bear	12,000 acres marsh and upland	5	-									10	5

Remarks: In line with deer populations in this general area, the refuge population was down somewhat but the hunting success was comparable to that of a year ago. Moose are transients. As with deer, moose wander on and off the refuge. Some deer winter off the refuge. The same is true of the bear.

*Carl E. Pospichal*  
Reported by Carl E. Pospichal; Refuge Mgr.



# INSTRUCTIONS

## Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.



3-1755

Form R-5  
6070

DISEASE

Refuge Rice Lake NWRYear 19 69

## Botulism

## Lead Poisoning or other Disease

Period of outbreak NONE

Period of heaviest losses \_\_\_\_\_

## Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease NONE

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_

3-1757

Form NR-7

Rev. June 1960)

## NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

(1)

Refuge

Rice Lake NWR

Year 19<sup>69</sup>

	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Wild Rice	3,958 lbs.	C	9/8- 9/19	Hand flail by Indians		115*							

- (1) Report agronomic farm crops on Form NR-8  
 (2) C = Collections and R = Receipts  
 (3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic \_\_\_\_\_  
 Hedgerows, cover patches \_\_\_\_\_  
 Food strips, food patches \_\_\_\_\_  
 Forest plantings \_\_\_\_\_

Remarks: 115 pounds of wild rice retained for seeding in  
 Rice Lake and West field impoundments. This seed planted  
 same day as harvested. Balance of rice sold to highest bidder.  
 Cash income \$4,680.23



3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Rice Lake NWR

County Aitkin

State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Corn	-	-	-	-	28	25	28	Mowed hay strips	70
Oats	-	-	-	-	22	15	22	Rye	35
Buckwheat	-	-	-	-	34	8	34		
								Fallow Ag. Land	61

No. of Permittees: Agricultural Operations - Haying Operations 8 Grazing Operations 2

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
	319.76	500	\$319.76	1. Cattle	32	176	\$ 176.00	
				2. Other				
				1. Total Refuge Acreage Under Cultivation				250
Hay - Wild				2. Acreage Cultivated as Service Operation				250



DIRECTIONS FOR PREPARING FORM NR-8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.



## REFUGE GRAIN REPORT

Refuge Rice Lake NWRMonths of January through December, 1965

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Corn	200	250	450			175	175	275		275	
Rye	103		103					103	103		
Buckwheat	40		40		40		40	0			
Oats		30	30		30		30	0			

(8) Indicate shipping or collection points \_\_\_\_\_

(9) Grain is stored at \_\_\_\_\_

(10) Remarks \_\_\_\_\_

\*See instructions on back.

(10) Remarks

NR-8a

(3) Grain is stored at

Refuge Granary

# REFUGE GRAIN REPORT

(8) Indicate shipping or collection points

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

**Report all grain in bushels.** For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- A total of columns 2 and 3.
- Column 4 less column 5.
- This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- Nearest railroad station for shipping and receiving.
- Where stored on refuge: "Headquarters granary," etc.
- Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

Office

Postmaster

File

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16-61482-1 U. S. GOVERNMENT PRINTING OFFICE

VARIETY*	OF PERIOD BEGINNING ON HAND	PERIOD DURING RECEIVED	TOTAL	Unseeded	Seeded	Feed	Total	PERIOD END OF ON HAND	Seed	Feed	Surplus
(1)	(2)	(3)	(4)	GRAIN DISPOSED OF				(5)	PROPOSED OR AVAILABLE USE*		
				(6)	(7)	(8)	(9)		(10)	(11)	(12)

Refuge

Refuge Lake Mary

Months of January through December, 1932

REFUGE GRAIN REPORT



## TIMBER REMOVAL

Refuge.....Rice Lake NWR

Year 19~~64~~<sup>69</sup>.....

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
No timber removal pending revised timber management plan.								

Total acreage cut over.....

Total income.....

No. of units removed B. F. ....

Method of slash disposal.....

**Cords**.....

Ties.....

.....

## ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

2

Reporting Year

1969

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6/23 7/18-25 9/4	Willow (Salix)	Scattered willow patches vicinity of Rice Landing and West Fields	75	2,4-D and 2,4,5-T Brush Killer	150#	2#/acre	Water 20 gal./acre	Ground Equip.
6/9	Quack grass	West Fields	28	Atrazine 80%	100#	3#/acre	Water	Ground Equip.

## 10. Summary of results (continue on reverse side, if necessary)

Apparent kill 90 plus per cent; target was resprouting of willow mowed the year previously. Access was too wet (ground, not surface) in some areas and these were not sprayed. Coverage was excellent because of low stature of target.

Quack grass kill with atrazine about 90%.



(Rev. March 1953)

Interior Publishing Section, Washington, D.C.

Rice Lake

MONTHS OF September TO December , 19 69

[illegible]



(OAGL)

(5)	(6)	(7)
Total Days Use	Peak Number	Total Production
Swans 3,640	250	
Geese 74,970	3,000	
Ducks 3,245,900	86,840	
Coots <del>30,750</del> 215,250	10,000	

## SUMMARY

Principal feeding areas Rice Lake, Rice River Pool,  
fields and small impoundments.

Principal nesting areas

Reported by

Carl E. Pospichal; Refuge Manager

Total waterfowl days' use 3,355,260

## INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.

1953

3-1751

Form NR-1A

(Nov., 1945)

# MIGRATORY BIRDS (other than waterfowl)

Refuge Rice LakeMonths of September to December 1956

(1) Species  Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young
<b>I. Water and Marsh Birds:</b>									
Common Loon	Summer	Resident	10	10/14	2	10/27			
Pied-billed Grebe	Summer	Resident	100	10/7	1	10/29			
Great Blue Heron	Summer	Resident	50	9/1	1	10/29			
American Bittern	Summer	Resident	30	9/1	3	9/19			
Sora	Summer	Resident	500	9/19	1	10/7			
Virginia Rail	Summer	Resident	30	9/15	1	9/19			
Sandhill Crane	Summer	Resident	4	10/29	4	11/6			
Kingfisher	Summer	Resident	10	10/14	2	11/8			
<b>II. Shorebirds, Gulls and Terns:</b>									
Killdeer	Summer	Res.	100	9/1	1	10/17			
Semi-plumated Plover			10	9/19					
Black-bellied Plover	2	9/1	2	9/1					
Common Snipe	Summer	Res.	300	9/19					
Spotted Sandpiper	Summer	Res.	100	9/9	5	11/9			
Pectoral Sandpiper			50	9/9					
Least Sandpiper			10	9/1					
Lesser Yellowlegs			100	10/19	15	11/10			
Black Tern	Summer	Res.	50	9/1	30	9/16			
Common Tern	Summer	Res.	100	9/1	10	9/16			
Ring-billed Gull	5	9/1	20	10/7	15	11/9			
Herring Gull	2	9/9	5	10/14	3	10/30			

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	5	2	10/17	3	10/30
White-winged dove	2	30	10/17	12	11/10
	Summer Res.	100	10/17	10	10/10
	Summer Res.	20	10/17	30	10/10
		100	10/17	12	11/10
IV. <u>Predaceous Birds:</u>					
Golden eagle (Bald)	Summer Res.	16	10/30	1	11/26
Barred Owl	Perm. Res.	20	9/1		
Horned owl	Perm. Res.	10	9/1		
Magpie	1	11/9	1	11/9	
Raven	Resident	30	11/26		
Crow	Summer Res.	500	10/1	5	End Pd.
Long-eared Owl	1	12/5	1	12/5	
Screech Owl	Res.	5	12/5		
Marsh Hawk	Summer Res.	30	10/14	2	11/12
Rough-legged Hawk	10	9/1	30	10/29	1
Broad-winged Hawk	Summer Res.	10	9/1	4	9/22
Sparrow Hawk	Summer Res.	20	9/22		
Red-tailed Hawk	Summer Res.	3	9/22		
Goshawk	Res. Occas. sighting				
Cooper's Hawk	1	9/11	5	9/20	1
Sharp-shinned Hawk	2	9/1	10	9/10	
Osprey	Occ. Visitor				

Reported by

Carl E. Pospichal; Refuge Mgr.

#### INSTRUCTIONS

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes) II. Shorebirds, Gulls and Terns (Charadriiformes) III. Doves and Pigeons (Columbiformes) IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.



3-1752  
Form NR-2  
(April 1946)

INSTRUCTIONS  
UPLAND GAME BIRDS

Form NR-2 - UPLAND GAME BIRDS\*

Refuge Rice Lake

Months of September to December, 1969

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	5000 acres timber and brush	16							300	No notable change from a year ago.
Sharp-tailed Grouse	1200 acres grass brush and cropland	30							40	Population about double. that of a year ago. More sightings; larger groups.
Woodcock	8,000 acres timber, brush, grassland and marsh.	160							50	Low population; light mig- ratory use.

\*Only columns applicable to the period covered should be used.

# INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.



3-1750c  
Form NR-1C  
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Rice Lake NWR

Year 196 9

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
			No waterfowl hunting on refuge.					

(over)



Year 1962

Rice Lake NWR

Refuge

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent.  $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

3-1753

## BIG GAME

Form NR-3  
(June 1945)Refuge Rice LakeCalendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number								Number	Source		
White-tailed Deer	12,000 acres marsh and upland	50	60								150	50	
Moose	12,000 acres marsh and upland	--	-								2	--	
Black Bear	12,000 acres marsh and upland	5	-								10	5	

Remarks: In line with deer populations in this general area, the refuge population was down somewhat but the hunting success was comparable to that of a year ago. Moose are transients. As with deer, moose wander on and off the refuge. Some deer winter off the refuge. The same is true of the bear.

Reported by Carl E. Pospichal; Refuge Mgr.



# INSTRUCTIONS

## Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.



3-1755

Form NR-5

.60701

## DISEASE

Refuge Rice Lake NWRYear 19<sup>69</sup>

## Botulism

## Lead Poisoning or other Disease

Period of outbreak NONE

Period of heaviest losses \_\_\_\_\_

## Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease NONE

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_

3-1757  
Form NR-7  
'Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

(1)

Refuge Rice Lake NWR

Year 1969

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Wild Rice	3,958 lbs.	6	9/8- 9/19	Hand flail by Indians		115*							

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic \_\_\_\_\_  
Hedgerows, cover patches \_\_\_\_\_  
Food strips, food patches \_\_\_\_\_  
Forest plantings \_\_\_\_\_

Remarks: 115 pounds of wild rice retained for seeding in  
Rice Lake and West field impoundments. This seed planted  
same day as harvested. Balance of rice sold to highest bidder.  
Cash income \$4,680.23



3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Rice Lake NWR County Aitkin State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Corn	-	-	-	-	28	25	28	Mowed hay strips	70
Oats	-	-	-	-	22	15	22	Rye	35
Buckwheat	-	-	-	-	34	8	34		
								Fallow Ag. Land	61

No. of Permittees: Agricultural Operations - Haying Operations 8 Grazing Operations 2

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
	319.76	300	\$319.76	1. Cattle	32	176	\$ 176.00	150
				2. Other				
				1. Total Refuge Acreage Under Cultivation				250
Hay - Wild				2. Acreage Cultivated as Service Operation				250



DIRECTIONS FOR PREPARING FORM NR-8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.



## REFUGE GRAIN REPORT

Refuge Rice Lake NWRMonths of January through December, 1965

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Corn	200	250	450			175	175	275		275	
Rye	103		103					103	103		
Buckwheat	40		40		40		40	0			
Oats		30	30		30		30	0			

(8) Indicate shipping or collection points \_\_\_\_\_

(9) Grain is stored at Refuge grainery

(10) Remarks \_\_\_\_\_

\*See instructions on back.

(10) Remarks

NR-8a

(a) Grain is stored at

Refuge District

# REFUGE GRAIN REPORT

(8) Indicate shipping or collection points

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

**Report all grain in bushels.** For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

Office

Backstreet

File

Code

16-61482-1 U. S. GOVERNMENT PRINTING OFFICE

AVAILABILITY	OF GRAIN RECEIVING ON HAND	PERIOD DURING RECEIVED	TOTAL	DISPOSED OF	RECEIVED	RECEIVED	TOTAL	PERIOD END OF ON HAND	SEED	FEED	SUBSIST
(1)	(2)	(3)	(4)	GRAIN DISPOSED OF			(5)	(6)	PROPOSED OR AVAILABLE USE		
									(A)		

Refuge

Base Lake Nank

Months of January

through

December, 1932

REFUGE GRAIN REPORT



## TIMBER REMOVAL

Refuge Rice Lake NWR Year 1946

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
No timber removal pending revised timber management plan.								

Total acreage cut over..... Total income.....

No. of units removed B. F. .... Method of slash disposal .....

**Cords**.....

**Ties**.....

\*\*\*\*\*

3-1979 (NR-12)  
(9/63)

*Corrected Copy*  
Bureau of Sport Fisheries and Wildlife

Refuge  
Rice Lake

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

2

Reporting Year

1969

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6/23 7/18-25 9/4	Willow (Salix)	Scattered willow patches vicinity of Rice Landing and West Fields	75	2,4-D and 2,4,5-T Brush Killer	150#	2#/acre	Water 20 gal./acre	Ground Equip.
6/9	Quack grass	West Fields	28	Atrazine 80%	100#	3#/acre	Water	Ground Equip.

10. Summary of results (continue on reverse side, if necessary)

Apparent kill 90 plus per cent; target was resprouting of willow mowed the year previously. Access was too wet (ground, not surface) in some areas and these were not sprayed. Coverage was excellent because of low stature of target.

Quack grass kill with atrazine about 90%.





WATERFOWL

REFUGE Rice Lake

MONTHS OF September TO December, 1969

(1) Species	(2) Weeks of reporting period									
	Sept. 8/31-9/6	7-13	14-20	21-27	Oct. 28-10/4	5-11	12-18	19-25	26-11/1	10 2-8
Swans:									70	250
Whistling										
Trumpeter										
Geese:										
Canada	400	400	500	500	500	750	800	750	500	450
Cackling Lesser						200	200	200	150	50
Brant										
White-fronted										
Snow				30	50	150	1,200	300	300	200
Blue				30	50	100	800	100	200	150
Other										
Ducks:										
Mallard	2,000	2,000	2,000	4,000	10,000	15,000	20,000	15,000	20,000	15,000
Black	150	150	150	250	250	500	600	400	500	800
Gadwall						10	100	50		
Baldpate	1,000	1,200	1,200	10,000	10,000	6,000	3,000	1,000	500	500
Pintail	300	300	300	500	500	1,000	1,000	200	100	50
Green-winged teal	500	500	500	1,000	6,000	5,000	6,000	3,000	1,000	600
Blue-winged teal	3,000	3,000	3,000	5,000	5,000	2,000	500			
Cinnamon teal										
Shoveler	30	30	30	50	50	100	100	50		
Wood	2,000	2,000	2,000	2,000	2,000	1,500	1,000	500	300	300
Redhead	30	50	50	100	300	500	1,000	500	200	50
Ring-necked	100	100	100	10,000	15,000	50,000	50,000	45,000	30,000	10,000
Canvasback	20	20	20	100	250	1,500	2,000	3,000	5,000	2,000
Scaup	20	20	20	20	20	100	1,000	1,000	5,000	5,000
Goldeneye	10	10	10	10	10	10	20	20	100	50
Bufflehead							20	20	50	50
Ruddy										
Other Hooded Merg.	250	250	250	250	250	300	500	500	500	300
Coot:	100	200	500	5,000	10,000	8,000	3,000	3,000	700	200